TABLE 1—Shiraz University School of Medicine: Academic Staffing Patterns 1978, 1983

Department	1978	1983 Left University	1983 Left Country
Anatomy	2	—	—
Anesthesiology	9	7	6
Biochemistry	5	2	2
Community Medicine	13	7	6
Medical Education	4	4	4
Medicine	29	21	11
Microbiology	7	3	3
Obstetrics/Gynecology	14	8	5
Ophthalmology	8	3	3
Otorhinolaryngology	4	2	2
Pathology	10	8	6
Pediatrics	18	7	5
Pharmacology	4	3	3
Physiology	3	2	2
Psychiatry	10	9	7
Radiology	9	7	6
Surgery	24	16	10
Total	173	108	81

(HAR) showed that more than 1,600 Iranian physicians had emigrated to the United States.[12] Studies on probable causes of this brain drain from Iran have shown that the reasons included military, financial, housing, and sociopolitical considerations.[13,14]

The departure of large numbers of physicians from Iran and the closure of the medical schools shutting off the flow of replacements, coupled with an increased demand for medical services as a result of the war with Iraq, seem to argue strongly in favor of the Iranian authorities' making every effort to encourage physicians who have fled the country to return to Iran. To date, the steps taken by the Iranian authorities have not proven effective. Much greater and more serious efforts are needed to persuade these physicians to return to Iran to resume teaching in their fields, and to help meet the pressing medical needs of their countrymen.

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Variations in Minimum Licensing Age and Fatal Motor Vehicle Crashes

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Abstract: The effect of differences in the legal minimum licensing age on fatal motor vehicle crashes was studied in New Jersey (age 17), Massachusetts (age 16½), and Connecticut (age 16). New Jersey's 17-year-old licensing law was associated with greatly reduced fatal crash involvement. It is estimated that 65 to 85 per cent reductions in 16 year-old-driver fatal crash involvement can be expected if the licensing age is increased from 16 to 17 without increasing fatal crash rates at older ages. (*Am J Public Health* 1983; 73:1401-1403.)

The purpose of the present study was to determine the effect of variations in the legal minimum licensing age on fatal motor vehicle crashes. Three states located in the same general geographic area and having similar overall motor vehicle fatality rates were selected for study: Connecticut (16 years and 30 days), Massachusetts (16½ years), and New Jersey (17 years). Other than their differences in minimum licensing age, the relevant laws in these states are similar in most respects known to affect crash rates of teenage drivers.

If 16-year-olds are not allowed to be licensed, it is expected that fewer 16-year-old drivers will be in crashes. However, it is possible that 16-year-olds may be involved in crashes more often as passengers, pedestrians, or bicyclists than their peers in states where 16-year-olds can be licensed. It is also possible that the crash involvement of older teenage drivers will be higher than in states where earlier licensure is allowed, because the drivers are less experienced.

Methods

The study was based on fatal crashes during 1975–1980. Laws pertaining to age of licensure were unchanged during these years in the states studied. The crash data were obtained from the Fatal Accident Reporting System, which provides information on virtually all motor vehicle fatalities

TABLE 1—Drivers in Fatal Crashes per 100,000 Population, 1975–1980, in Three States, Each with a Different Minimum Licensing Age

Age	State and Licensing Age			Ratios		
	CT (16)	MA (16½)	NJ (17)	CT/NJ	CT/MA	MA/NJ
16	26	18	4	6.5	1.4	4.5
17	40	46	46	0.9	0.9	1.0
18	58	54	55	1.1	1.1	1.0
19	46	51	57	0.8	0.9	0.9
20	52	48	48	1.1	1.1	1.0
21	43	47	43	1.0	0.9	1.1
22	43	41	38	1.1	1.0	1.1
23	32	36	34	0.9	0.9	1.1
24	25	33	34	0.7	0.8	1.0
25	33	33	31	1.1	1.0	1.1
26	25	26	26	1.0	1.0	1.0
27	26	28	27	1.0	0.9	1.0
28	26	22	28	0.9	1.2	0.8
29	26	24	22	1.2	1.1	1.1

in the United States.[1] Populations for various age groups were based on US Census data.

Results

In Connecticut, 42 per cent of the 16-year-olds were licensed to drive during the study period, while only 0.1 per cent of New Jersey's 16-year-olds were licensed.[2] (Agricultural licensures may be obtained in New Jersey at age 16.) Licensure data in Massachusetts were available only for 1979 and 1980, when 14 per cent of the 16-year-olds were licensed.[3]

Table 1 presents, by age group, the numbers of drivers 16–29 years old involved in fatal crashes per 100,000 population in the three states during 1975–1980. Drivers of motorcycles and large trucks were excluded. Also shown are ratios of fatal crash rates by age for pairs of states.

There were only 33 16-year-old drivers involved in fatal crashes in New Jersey, or 4 per 100,000 population, compared to 18 and 26 in Massachusetts and Connecticut, respectively. The differences in rates at age 16 were much greater than at ages 17–29, and ratios between the states at

TABLE 2—Motor Vehicle Related Fatalities per 100,000 Population, 1975–1980, in Three States, Each with a Different Minimum Licensing Age

Age	State and Licensing Age			Ratios		
	CT (16)	MA (16½)	NJ (17)	CT/NJ	CT/MA	MA/NJ
16	22	25	16	1.4	0.9	1.6
17	37	37	34	1.1	1.0	1.1
18	44	42	43	1.0	1.0	1.0
19	35	37	39	0.9	0.9	0.9
20	36	34	33	1.1	1.1	1.0
21	31	31	33	0.9	1.0	0.9
22	25	31	24	1.0	0.8	1.3
23	19	24	24	0.8	0.8	1.0
24	20	19	24	0.8	1.1	0.8
25	20	21	17	1.2	1.0	1.2
26	17	16	17	1.0	1.1	0.9
27	14	19	15	0.9	0.7	1.3
28	16	17	16	1.0	0.9	1.1
29	14	14	14	1.0	1.0	1.0

TABLE 3—Estimated Reductions in 16-Year-Old Driver Fatal Crash Involvement in New Jersey Resulting from 17-Year-Old Minimum Licensing Age Law, and Estimated Potential Reductions in Connecticut if Licensing Age Had Been 17, 1975–1980

16 year old Drivers in Fatal Crashes, 1975–1980		
	New Jersey	Connecticut
Expected Number	215	14
Actual Number	33	92
Difference	182	78
Difference if possible offsetting effect at age 17 removed	140	61
Per Cent reduction	65–85*	66–85**

*Estimated reduction.
**Potential reduction.

other ages were about the same (i.e., close to 1).

Rates of 17-year-old driver fatal crash involvement in New Jersey (46) and Massachusetts (46) were slightly higher than in Connecticut (40). If ages 16 and 17 are combined, the resulting rate in New Jersey (25) still is substantially lower than in Connecticut (33; CT/NJ = 1.3) and Massachusetts (32; MA/NJ = 1.3).

Table 2 shows that 16-year-olds in New Jersey had fewer motor vehicle related deaths per capita than 16-year-olds in Massachusetts and Connecticut, relative to differences at older ages. This was due primarily to a very low rate of driver deaths (1.1) compared to Massachusetts (7.0) and Connecticut (8.3). In contrast, death rates for 16-year-olds as passengers, bicyclists and pedestrians were comparable in New Jersey and Connecticut. For example, 16-year-old passenger death rates were 10.1 in New Jersey and 9.7 in Connecticut. The overall death rate of 16-year-olds in Massachusetts was higher than in Connecticut, principally because of a higher passenger death rate.

Table 3 displays the estimated number of 16-year-old drivers that would have been in fatal crashes in New Jersey if the state had a 16-year-old licensing law, derived by multiplying the Connecticut rate of 16-year-old driver involvement per capita by New Jersey's population of 16-year-olds. Similarly, the potential reduction in 16-year-old driver fatal crash involvement in Connecticut that would have occurred if the licensing age had been 17 was estimated based on New Jersey data. In both cases, the estimates were also modified to assume that the entire difference in fatal crash involvement rates between Connecticut and New Jersey at age 17 is due to delaying licensure until age 17. Estimated reductions in 16-year-old driver crash involvement ranged from about 65 per cent to 85 per cent.

Discussion

New Jersey's 17-year-old minimum licensing age is associated with reduced fatal crash involvement among 16-year-olds. Their involvement as drivers is greatly reduced, and they do not die more as passengers, bicyclists, and pedestrians.

Seventeen-year-old drivers in New Jersey had a slightly higher rate of driver crash involvement per 100,000 population than 17-year-olds in Connecticut. Although differences of such small magnitude between the states also occurred at some other ages, it is possible that the reduced crash involvement of 16-year-old drivers in New Jersey may be

partially offset at age 17. Crash involvement of 17-year-olds per 100,000 licensed drivers was much greater in New Jersey (86) than in Connecticut (53). However, the per capita rates are not very different because only 53 per cent of New Jersey's 17-year-olds were licensed in 1975–1980, whereas 77 per cent of Connecticut's 17-year-olds were. Delaying licensure until age 17 also delays licensure among 17-year-olds. New Jersey has the lowest rate of 17-year-olds licensed in the United States.

The higher fatal crash involvement rate of 17-year-old drivers in New Jersey is compatible with the driver inexperience hypothesis, but may have other explanations. Whatever the case, the data based on 16- and 17-year-olds combined indicate that the net effect of New Jersey's law is strongly positive.

In contrast, the data do not permit any conclusions concerning Massachusetts' 16½-year-old licensure law. It apparently reduces the fatal crash involvement rate of 16-year-old-drivers, but is associated with a total motor vehicle death rate for 16-year-olds which is higher than that in Connecticut.

Teenagers contribute disproportionately to highway deaths, both their own and others.[4–6] The present study suggests that raising the minimum driving age from 16 to 17 (but not to 16½) would reduce substantially the fatal crash involvement of 16-year-olds.

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The Temporal Relation between Cigarette Smoking and Pancreatic Cancer

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Abstract: Temporal trends in US cigarette smoking prevalence rates 1920 to 1978, were related to temporal trends in US pancreatic cancer mortality rates in both sexes. In males, the rise and fall in smoking prevalence was followed by a rise and recent fall in cancer rates. In females, the later rise in smoking prevalence has been accompanied by a rise in cancer rate, and a recent slight decline in smoking rate has been associated with a slowing of the rise in cancer rate. (*Am J Public Health* 1984; 74:1403–1404.)

If there is an important biologic connection between cigarette smoking and pancreatic cancer, then it should be possible to show that change in cigarette usage by a population over time is associated with similar change in pancreatic cancer mortality rate. The 1982 Surgeon General's Report on the Health Consequences of Smoking[1] states that "Support for the temporality of the association is advanced by . . . cohort analysis showing correlation between trends in smoking patterns and pancreatic cancer mortality." The references for this statement are a cohort analysis of pancreatic cancer mortality rates in the United States during 1939–69 by Benarde and Weiss[2] and a paper by Hoover and Cole[3] on trends in cigarette smoking in relation to bladder cancer incidence trends. The former included no data on trends in smoking and the latter included no data on pancreatic cancer

mortality trends. The purpose of this report is to bring together both such sets of data.

Methods

The proportion of US adults by sex who were cigarette smokers was obtained for 1920–65 from the report by Burbank[4] and for 1970–78 from that of Moss.[5] Burbank's data were for people aged 18 and over, while the Moss data were for people aged 17 and over.

Temporal trends in US age-adjusted pancreatic cancer mortality rates by race and sex from 1935 to 1973–74 were obtained from the paper of Devesa and Silverman.[6] Age-, race-, and sex-specific data for the US population in 1978 were supplied by the Bureau of the Census and similar data on pancreatic cancer deaths were obtained from the National Center for Health Statistics so that age-adjusted rates by sex and race could be calculated, using the 1950 total population age distribution for a standard as Devesa and Silverman did.

Burbank did not provide smoking prevalence rates by race. The data reported by Moss for 1978 show little difference between Whites and Blacks in smoking prevalence rates so her total population figures for each sex in 1970–78 were used. Race-specific pancreatic cancer mortality rates are available, but only the White rates are used for two reasons: 1) Whites continue to constitute a very large proportion of the US population, 90 per cent in 1940 and 86 per cent in 1978, and contribute an even larger proportion of pancreatic cancer cases, 95 per cent in 1940 and 89 per cent in 1978; and 2) the changing pancreatic cancer rates in non-Whites may well be biased by changes in access to medical care.

Results

Figure 1 shows curves for cigarette smoking prevalence by sex from 1920 to 1978 and pancreatic cancer mortality

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